Arctic Cat Bearcat 454

1996 Arctic Cat Bearcat 454 ATV Service Manual

Model: Bearcat 454 | Part Number: 2255-466

Introduction

This service manual provides comprehensive service, maintenance, and troubleshooting information specifically for the 1996 Arctic Cat Bearcat 454 4x4 ATVs. It is designed to assist owners and technicians in performing various procedures to ensure the proper operation and longevity of the vehicle. The manual is structured into detailed sections, each covering a specific component or system, complete with disassembly, inspection, and assembly instructions. Utilizing this manual will enhance understanding and efficiency in all service-related tasks.

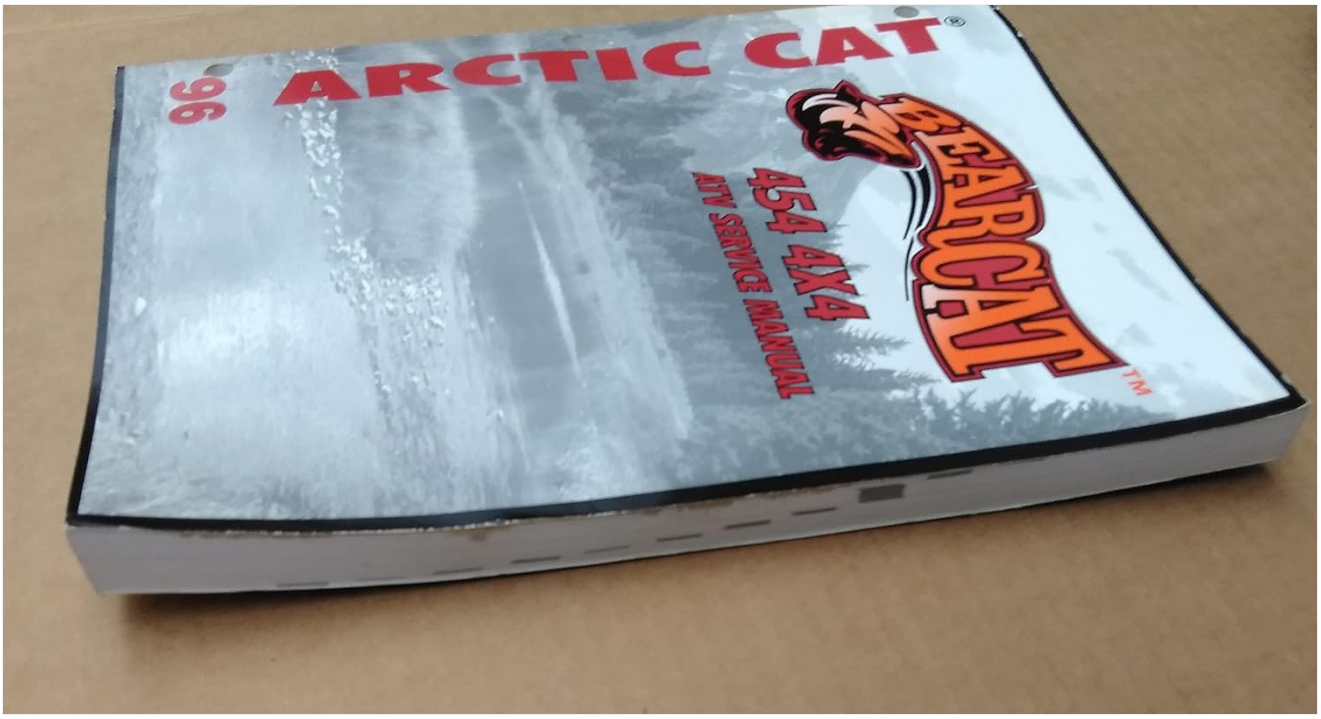


Image: Front cover of the 1996 Arctic Cat Bearcat 454 ATV Service Manual, showing the title and model information.

General Information

This section provides foundational knowledge about the Arctic Cat Bearcat 454 ATV, including its overall design, safety precautions, and general operating principles. It is crucial to review this section before attempting any service

or maintenance procedures to ensure safe and effective work. Understanding the basic structure and warnings will prevent potential damage to the vehicle or injury to the operator.

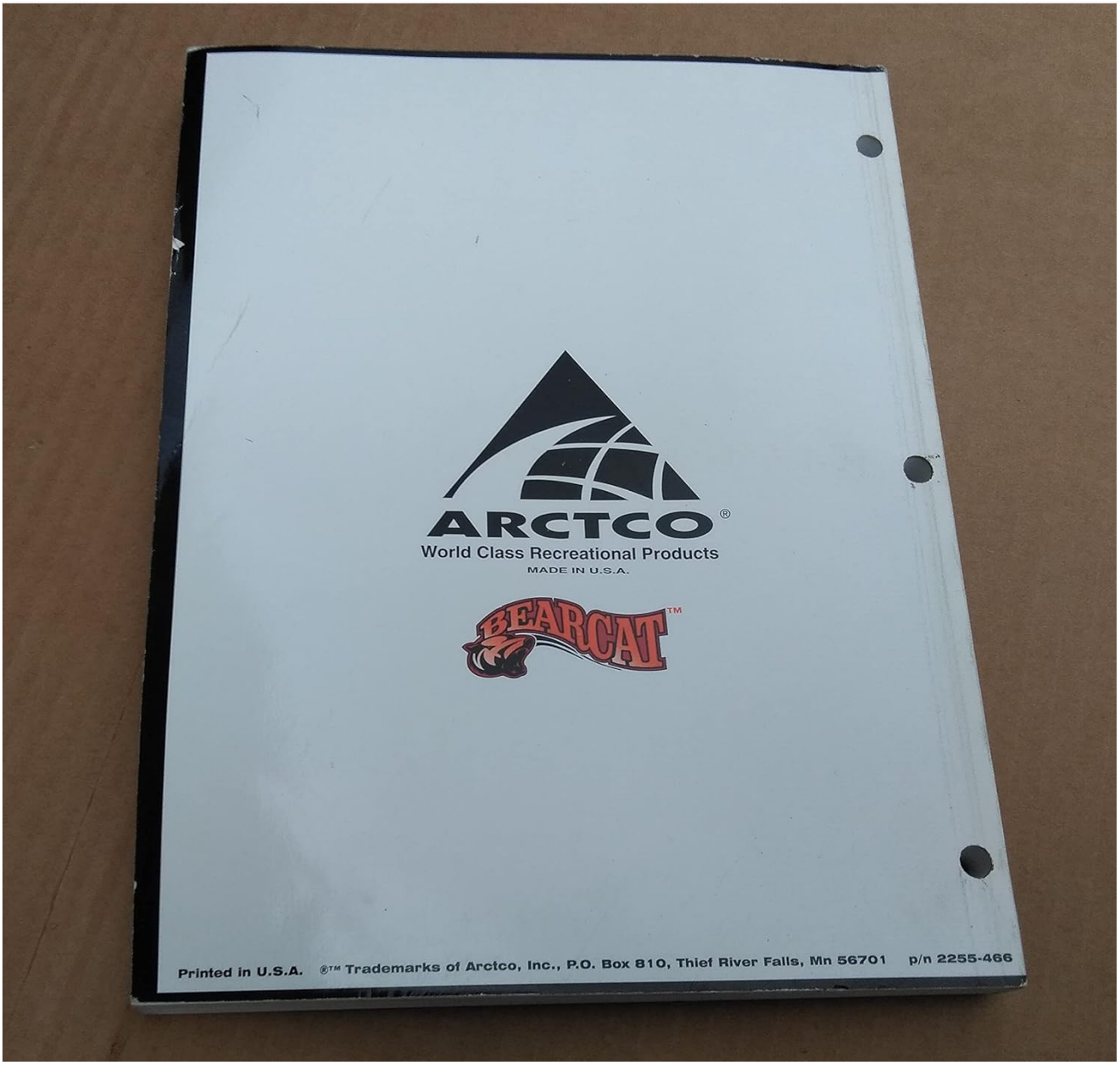


Image: Back cover of the service manual, displaying the Arctco logo, 'Made in U.S.A.', and part number 2255-466.

Manual Structure Overview

The manual is organized into distinct sections, each dedicated to a specific system or component of the ATV. This modular approach allows for easy navigation and focused attention on particular areas requiring service. Each section contains detailed instructions, diagrams, and specifications relevant to its topic.

Image: Side view of the service manual, illustrating the numbered tabs for quick access to different sections.

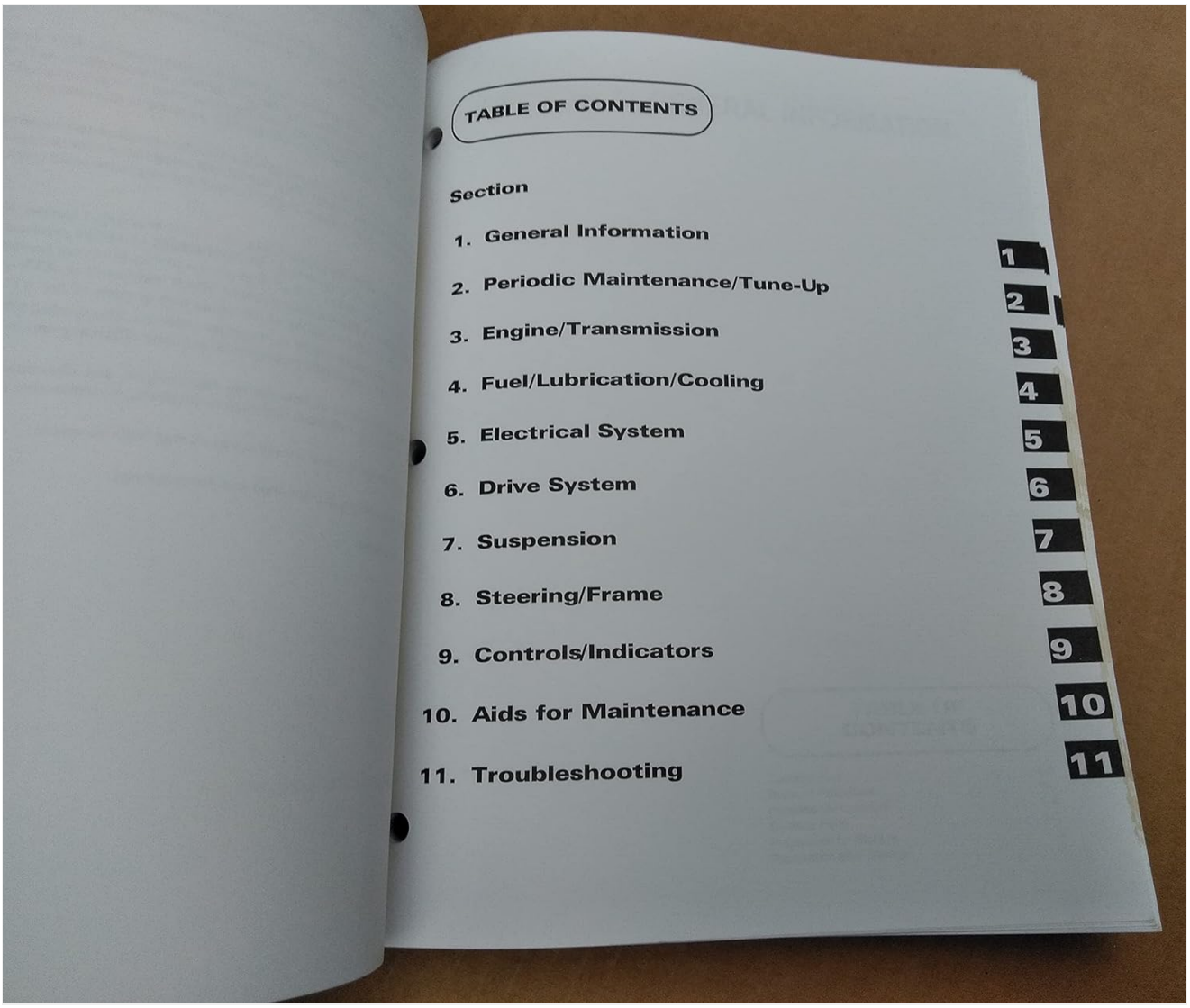


Image: A page from the manual showing the Table of Contents, listing 11 main sections.

Periodic Maintenance and Tune-Up

Regular maintenance is essential for the optimal performance and longevity of your Arctic Cat Bearcat 454 ATV. This section details all routine checks, adjustments, and replacements required at specified intervals. Following these guidelines will help prevent major issues and ensure the ATV operates reliably. Procedures include fluid checks, filter replacements, and general inspection points.

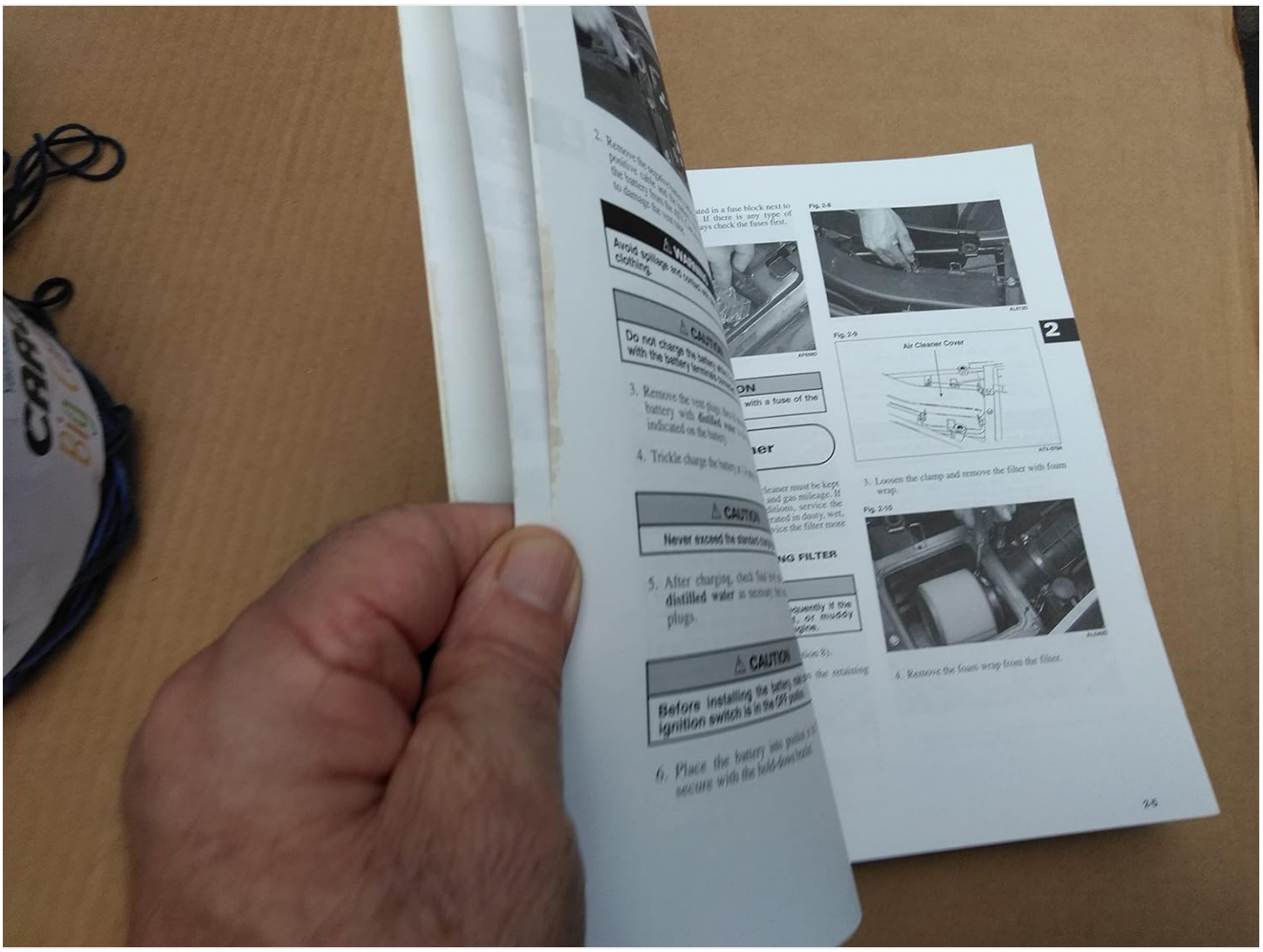


Image: A page from the manual illustrating general maintenance instructions, including warnings about battery handling and air filter cleaning.

Engine and Transmission

This comprehensive section covers all aspects of the ATV's engine and transmission systems. It provides detailed instructions for disassembly, inspection, repair, and reassembly of critical components. Specifications, torque values, and diagnostic procedures are included to guide technicians through complex engine and transmission services. Proper maintenance of these systems is vital for the ATV's power delivery and operational efficiency.

Engine/Transmission

This section has been organized into sub-sections which show a progression for the complete servicing of the Arctic Cat ATV engine/transmission.

To service the center crankcase halves, the engine/transmission must be removed from the frame. To service top-side, left-side, and right-side components, the engine/transmission does not have to be removed from the frame.

■ **NOTE: Arctco recommends the use of new gaskets, lock nuts, and seals and lubricating all internal components when servicing the engine/transmission.**

■ **NOTE: Some photographs used in this section are used for clarity purposes only and are not designed to depict actual conditions.**

Specifications

VALVES AND GUIDES	
Valve face diameter (intake)	30.6 mm (1.20 in.)
(exhaust)	27.0 mm (1.06 in.)
Valve/tappet clearance (cold engine) (intake)	0.05-0.10 mm (0.002-0.004 in.)
(exhaust)	0.17-0.22 mm (0.007-0.009 in.)
Valve guide/stem clearance (intake)	0.010-0.037 mm (0.0004-0.015 in.)
(exhaust)	0.030-0.057 mm (0.0012-0.0024 in.)
Valve guide/valve stem deflection (max) (wobble method)	0.35 mm (0.014 in.)
Valve guide inside diameter	5.000-5.012 mm (0.1969-0.1973 in.)
Valve stem outside diameter (intake)	4.975-4.990 mm (0.1959-0.1965 in.)
(exhaust)	4.955-4.970 mm (0.1951-0.1957 in.)
Valve stem runout (max)	0.05 mm (0.002 in.)
Valve head thickness (max)	0.5 mm (0.02 in.)
Valve stem end length (max)	1.8 mm (0.07 in.)
Valve seat width	0.9-1.1 mm (0.035-0.043 in.)
Valve seat angle (intake)	45°
(exhaust)	45°
Valve face width	0.9-1.1 mm (0.035-0.043 in.)
Valve face radial runout (max)	0.03 mm (0.001 in.)
Valve spring free length (max)	
(inner)	35 mm (1.38 in.)
(outer)	37.8 mm (1.49 in.)
Valve spring tension (inner) @ 28 mm (1.10 in.)	5.3-6.5 kg (11.7-14.3 lb)

CLUTCH		
Clutch release screw		1/8 turn back
Drive plate (fiber) width	(min)	2.62 mm (0.103 in.)
Drive plate (fiber) tab		13-14 mm (0.50-0.55 in.)
Drive plate distortion	(max)	0.10 mm (0.004 in.)
Driven plate distortion	(min)	33.7 mm (1.33 in.)
Clutch spring free length		139.8-140.2 mm (5.504-5.520 in.)
Clutch wheel inside diameter		No groove at any part
Clutch shoe	RPM	1700 ± 200
Clutch engagement	RPM	3500 ± 300
Clutch kick-up		2.392 (67/28)
Primary reduction ratio		1.133 (17/15)
Secondary reduction ratio		
Final reduction ratio	(front)	3.6 (36/10)
	(rear)	3.6 (36/10)
Secondary-transmission reduction ratio	(low)	2.363 (22/23 x 28/17 x 42/28)
	(high)	1.5 (42/28)
Gear ratios	(1st)	3.09 (34/11)
	(2nd)	1.75 (28/16)
	(3rd)	1.2 (24/20)
	(4th)	0.956 (22/23)
	(5th)	0.8 (20/25)
	(reverse)	2.636 (24/11 x 29/24)
Shift fork to groove side clearance		0.1-0.3 mm (0.004-0.012 in.)
Secondary-transmission fork to groove clearance		0-0.2 mm (0-0.008 in.)
Reverse fork to groove clearance		0-0.2 mm (0.008 in.)
Shift fork groove width	(#1 and #2)	5.5-5.6 mm (0.217-0.220 in.)
	(secondary transmission)	5.4-5.5 mm (0.213-0.217 in.)
	(reverse)	4.9-5.0 mm (0.193-0.197 in.)
Shift fork thickness	(#1 and #2)	5.3-5.4 mm (0.209-0.213 in.)
	(secondary transmission)	5.3-5.4 mm (0.209-0.213 in.)
	(reverse)	4.8-4.9 mm (0.189-0.193 in.)
Thermostat valve opening temperature		48.5-51.5°C (119.3-124.7°F)
Thermostat valve lift		Over 3 mm (0.12 in.) at 65°C (149°F)
Cooling fan thermo-switch operating temperature	(off→on)	115°C (239°F) (approx)
	(on→off)	108°C (226°F) (approx)

Removing Engine/ Transmission

Many service procedures can be performed without removing the engine/transmission from the frame. Closely observe the note introducing each sub-section for this important information.

AT THIS POINT

If the technician's objective is to service/replace left-side cover oil seals (3), front output joint oil seal (1), rear output joint oil seal (1), and/or the oil strainer (from beneath the engine/transmission), the engine/transmission does not have to be removed from the frame.

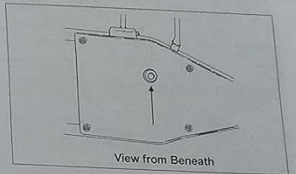
1. Lift the seat lock lever and remove the seat.
2. Remove the battery by removing the negative cable first and then the positive cable.

⚠ CAUTION

Battery acid is harmful if it contacts eyes, skin, or clothing. Care must be taken whenever handling a battery.

3. Drain the oil from beneath the engine/transmission; then drain the cooling system.

Fig. 3-1



4. Drain the gas from the gas tank; then remove the tank (see Section 4).
5. Remove the front fenders and the front rack (see Section 8).
6. Remove the two cap screws securing the exhaust header pipe to the engine; then free the pipe from the engine. Account for a grafoil gasket.
7. Loosen the exhaust pipe from the muffler at the juncture in front of the muffler; then remove the exhaust pipe.

Image: A page from the manual displaying detailed specifications for the engine and transmission, including valve clearances, cylinder dimensions, and clutch settings.

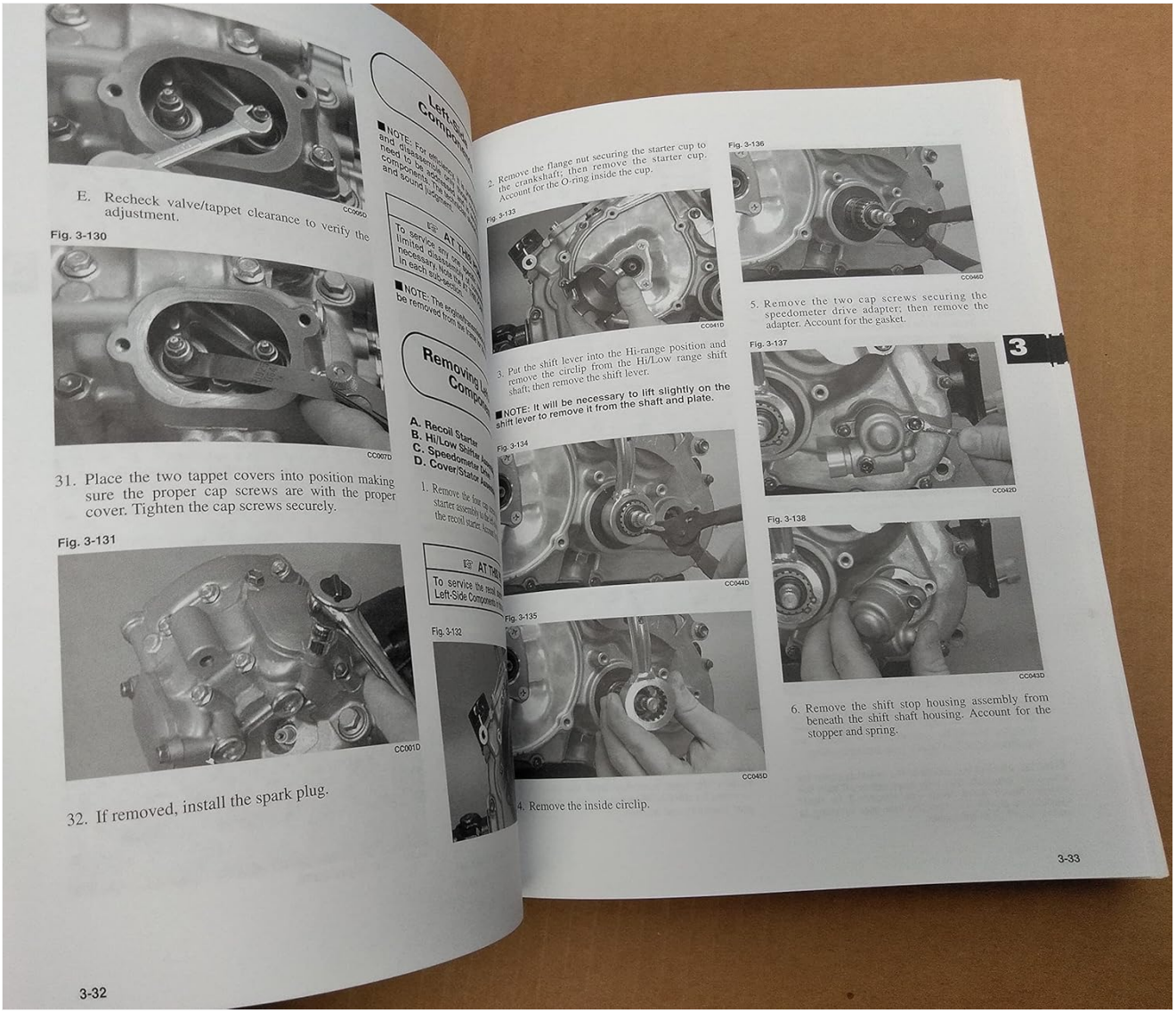


Image: A page from the manual showing detailed diagrams and step-by-step instructions for engine and transmission component removal and inspection.

Fuel, Lubrication, and Cooling Systems

This section addresses the fuel delivery, lubrication, and cooling systems of the Arctic Cat Bearcat 454. It includes procedures for inspecting, cleaning, and repairing components such as the carburetor, fuel lines, oil pump, and radiator. Maintaining these systems correctly ensures efficient fuel combustion, proper engine lubrication, and effective temperature regulation, all critical for engine health.

Electrical System

The electrical system section provides detailed information on the ATV's wiring, components, and diagnostic procedures. It covers the battery, charging system, ignition system, lighting, and various sensors. Troubleshooting guides and wiring diagrams are included to assist in identifying and resolving electrical issues. Proper electrical system function is crucial for starting, lighting, and overall vehicle operation.

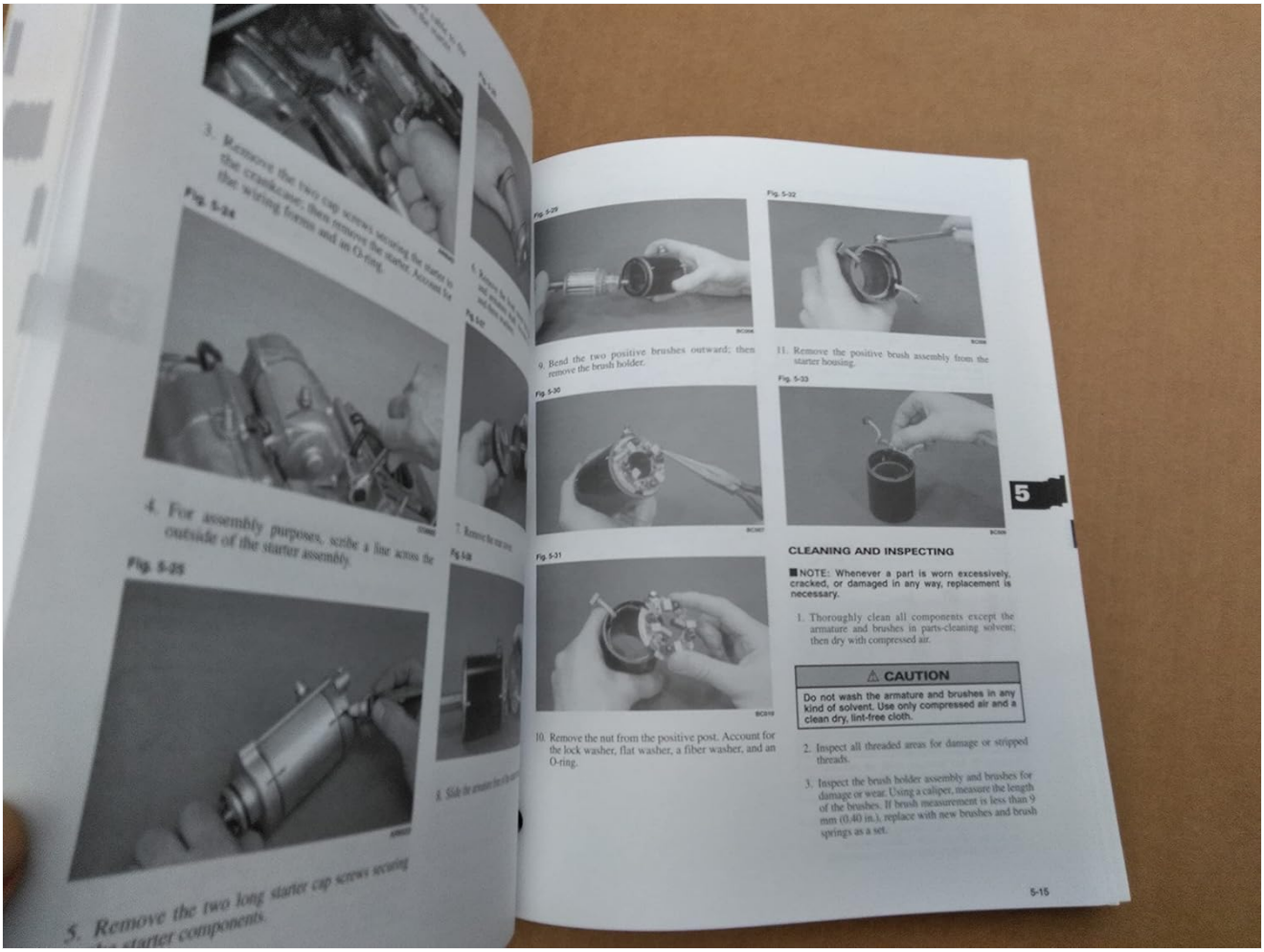


Image: A page from the manual detailing cleaning and inspection procedures for electrical components, specifically starter motor brushes.

Drive System

This section focuses on the drive system components, including the axles, differentials, and drive shafts. It outlines procedures for inspection, lubrication, and repair to ensure smooth power transfer to the wheels. Proper maintenance of the drive system is essential for the ATV's traction and mobility, especially in varied terrain conditions.

Suspension

Information regarding the front and rear suspension systems is provided here. This includes details on shock absorbers, springs, A-arms, and related components. Procedures for inspection, adjustment, and replacement are covered to maintain ride comfort, handling, and stability. Regular suspension checks are important for safe off-road operation.

Steering and Frame

This section details the steering mechanism and the ATV's frame structure. It includes instructions for inspecting and maintaining the handlebars, steering column, tie rods, and frame components. Proper alignment and integrity of these parts are critical for safe and responsive steering. Any damage to the frame should be addressed promptly.

Controls and Indicators

This section covers the various controls and indicators on the Arctic Cat Bearcat 454, such as the throttle, brakes, gear shifter, and dashboard gauges. It provides guidance on their adjustment, inspection, and troubleshooting to ensure they function correctly and provide accurate information to the operator. Functional controls and clear indicators are vital for safe operation.

Aids for Maintenance

This section offers supplementary information and tools to assist in maintenance procedures. It may include special tool requirements, conversion charts, and general tips for efficient and effective servicing. Utilizing these aids can simplify complex tasks and improve the quality of repairs.

Troubleshooting

The troubleshooting section provides a systematic approach to diagnosing common problems that may arise with the Arctic Cat Bearcat 454 ATV. It includes flowcharts and symptom-based guides to help identify the root cause of issues, from engine starting problems to electrical malfunctions. This section is invaluable for quickly resolving operational difficulties.

Specifications

This section lists the technical specifications for the 1996 Arctic Cat Bearcat 454 ATV. It includes critical data such as dimensions, weight, engine displacement, fluid capacities, and torque specifications. These details are essential for proper component selection, assembly, and overall vehicle performance verification.

Key Specifications

Specification	Value
ASIN	B01D1MASYG
Publisher	by Publisher
Publication date	January 1, 2004
Language	English
Item Weight	2 pounds
Best Sellers Rank	See Top 100 in Books

Warranty and Support

For information regarding product warranty, service, or technical support, please refer to the original purchase documentation or contact Arctic Cat customer service directly. This manual is a service guide and does not contain warranty statements. Always ensure you are using official parts and following recommended service intervals to maintain warranty validity.